

#### ABSTRACT OF THE DISCLOSURE

The present invention discloses a fluid-free mesh bearing damper, e.g., for a flywheel energy storage device. The disclosed mesh bearing damper is uniquely suitable for use in combination with flywheel assemblies, which typically are evacuated by one or more pumps to create a vacuum to substantially minimize energy loss due to air friction, because, among others, the disclosed bearing damper does not use fluids, e.g., pressurized oil, that may affect deleteriously the operation of the pumps. Moreover, the disclosed bearing damper damps vibrations, i.e., reduces the amplitude of the vibrations, induced by the rotating shaft, deflection of the shaft, and/or by the misalignment, or eccentricity, of the shaft; substantially lowers the load on the bearings, which enhances the life of the bearings and facilitates magnetic levitation; and transfers heat away from the bearings, which, further, enhances the life of the bearings. The disclosed bearing damper comprises at least one, e.g., copper, aluminum, carbon fiber, etc., circular mesh disk, which is in tight interference fit with the shaft bearing at the disk's inner periphery.

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